(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 8 April 2004 (08.04.2004)

PCT

(10) International Publication Number WO 2004/029935 A1

(51) International Patent Classification⁷: H04B 1/66, H04N 7/00

G10L 19/00,

(21) International Application Number:

PCT/IB2003/004856

(22) International Filing Date:

24 September 2003 (24.09.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 60/413,051 2

24 September 2002 (24.09.2002) U

(71) Applicant (for all designated States except US): RAD DATA COMMUNICATIONS [IL/IL]; 24 Raoul Wallenburg Street, 69719 Tel Aviv (IL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): STEIN, Yaakov

[IL/IL]; c/o RAD Data Communications, 24 Raoul Wallenburg Street, 69719 Tel Aviv (IL).

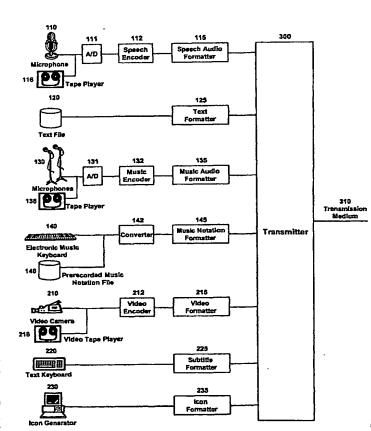
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

[Continued on next page]

(54) Title: A SYSTEM AND METHOD FOR LOW BIT-RATE COMPRESSION OF COMBINED SPEECH AND MUSIC



(57) Abstract: A system and method of compressing audio signals (110, 116, 130, 136, 140, 146) which simultaneously contain speech (110, 116), music (130,136, 140, 146) and possibly other audio in such fashion as to reduce the required bandwidth or storage capacity. Audio (110, 116, 130, 136, 140, 146) is transmitted as simultaneous but separate streams of speech audio (110, 116) and music (or other non-speech) audio (130, 136, 140, 146), as well as other streams such as video (210, 216), text (120, 220), computer graphics (230), etc. By keeping the music (130, 136, 140, 146) separate from the speech (110, 116), each can be maximally compressed. By synchronizing these streams (110,, 116, 130, 136, 140, 146, 210, 216, 220, 230), the desired combination can be recreated at the receiver with the user being unaware of the separation. Instead of analog or digital mixing of the music or other non-speech audio (130, 136, 140, 146) with the speech audio (110, 116) to create a composite audio stream (110, 116, 130, 136, 140, 146), the streams are kept logically separate, and, thus, can be optimally compressed using existing technologies.

BEST AVAILABLE COPY

WO 2004/029935 A1



 before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.